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产品名称：Palifosfamide
产品别名：帕利伐米；Isophosphoramide mustard; IPM; ZIO-201

生物活性：

Description	Palifosfamide is a novel DNA alkylator and the active metabolite of ifosfamide, with antitumor activity.
In Vitro	Palifosfamide lysine (ZIO-201) is a stable form of palifosfamide. Palifosfamide lysine has broad activity in sarcoma lines *in vitro*. The **IC_{50}** ranges from 2.25 ro 6.75 μM for most cell lines except OS222 (IC_{50}=31.5 μM)[1].
In Vivo	Tumor growth inhibition is seen in both OS31 and OS33 xenografts and the RMS xenograft resulting in a significant difference in event-free survival between the control and the treated groups. Differential gene expression of ALDH3A1 but not ALDH1A1 is noted in the OS31 xenograft[1]. Stabilized palifosfamide administered to mice suppresses MX-1 tumor growth by greater than 80% with 17% complete antitumor responses. Oral bioavailability in rats is 48-73% of parenteral administration, and antitumor activity in mice is equivalent by both routes. Treatment with palifosfamide-tris combined with docetaxelor doxorubicin at optimal regimens results in complete tumor regression in 62-75% of mice[2].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 42 mg/mL (190.03 mM)** * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.5245 mL	22.6224 mL	45.2448 mL
	5 mM	0.9049 mL	4.5245 mL	9.0490 mL
	10 mM	0.4524 mL	2.2622 mL	4.5245 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

References	[1]. Hingorani P, et al. Preclinical activity of palifosfamide lysine (ZIO-201) in pediatric sarcomas including oxazaphosphorine-resistant osteosarcoma. Cancer Chemother Pharmacol. 2009 Sep;64(4):733-40. [2]. Jones B, et al. Anticancer activity of stabilized palifosfamide in vivo: schedule effects, oral bioavailability, and enhanced activity with docetaxel and doxorubicin. Anticancer Drugs. 2012 Feb;23(2):173-84.

实验参考：

Cell Assay	Palifosfamide is dissolved in phosphate buffered saline (PBS). Cells are plated in 96-well microtiter plates with approximately 500 cells per well in 100 μL of media. After 24 h of incubation at 37°C, cells are treated with increasing concentrations of palifosfamide lysine in separate plates either as a single-day treatment or three consecutive days of treatment, with fresh drug being added each day. The plates are incubated for 72 h at 37°C with 5% CO_2. After 72 h, 250 μg of MTT is added to each well and incubated at 37°C for 6 h. MTT is converted to formazine crystals by mitochondria of viable cells, which are then dissolved in 100 μL of dimethyl sulfoxide. Optical density is measured at 595

	nm[2].
Animal Administration	Mice: CB17 female SCID mice are used in the study. Once the tumors reached 50–150 mm^3, mice are randomized into control and treatment groups (5-8 mice/group) for each tumor line. Cyclophosphamide is administered at the dose of 150 mg/kg intraperitoneally once a week for 6 weeks. Palifosfamide lysine is administered intravenously at the maximum tolerated dose of 100 mg/kg for three consecutive days as a one-time treatment and serial tumor volumes are determined over the next 6 weeks. Mice are sacrificed at the end of the experiment[2].
References	[1]. Hingorani P, et al. Preclinical activity of palifosfamide lysine (ZIO-201) in pediatric sarcomas including oxazaphosphorine-resistant osteosarcoma. Cancer Chemother Pharmacol. 2009 Sep;64(4):733-40. [2]. Jones B, et al. Anticancer activity of stabilized palifosfamide in vivo: schedule effects, oral bioavailability, and enhanced activity with docetaxel and doxorubicin. Anticancer Drugs. 2012 Feb;23(2):173-84.